

### Claims

1. Intervertebral disk prosthesis or nuclear prosthesis (1) consisting of a longitudinal, flexibility-yielding object which can be wound in a spiral shape (2), with a first exterior end (3), a second interior end (4) and a longitudinal central axis (5),

**is characterised in that**

the cross-section (10) of the object (2) which is orthogonal towards the central axis (5) is reduced in size towards the second interior end (4).

2. Intervertebral disk prosthesis (1) as per claim 1 is characterised in that the orthogonal cross-section (10) is continuously reduced in size.

3. Intervertebral disk prosthesis (1) as per claim 1 or 2 is characterised in that the cross-section (10) of the object (2), which is orthogonal towards the central axis (5), is continuously reduced in size towards the first exterior end (3), preferably with the reduction occurring continuously.

4. Intervertebral disk prosthesis (1) as per one of the claims 1 to 3 is characterised in that the measured width of the object (2), running vertically towards the central axis (5), is reduced in size – viewed from its centre - towards the exterior end (3), preferably with the reduction occurring continuously.

5. Intervertebral disk prosthesis (1) as per one of the claims 1 to 4 is characterised in that the measured width of the object (2), running vertically towards the central axis (5), is reduced in size – viewed from its centre - towards the inner end (4), preferably with the reduction occurring continuously.

6. Intervertebral disk prosthesis (1) as per one of the claims 1 to 5 is characterised in that the width of the object (2) in its centre is wider by 50% to

500%, preferably wider by 100% to 300%, than at its interior and exterior ends (4,3).

7. Intervertebral disk prosthesis (1) as per one of the claims 1 to 6 is characterised in that the object (2) in its spiral-wound state towards the central axis (5) features an upper spiral level (6) and a lower spiral level (7), which are both curved in convex shapes and are suitable for application to the cover plates of two adjacent intervertebral disk spaces.

8. Intervertebral disk prosthesis (1) as per one of the claims 1 to 7 is characterised in that object (2) in a spiral-wound unloaded state features a gap between the spirals.

9. Intervertebral disk prosthesis (1) as per claim 8 is characterised in that the gap has a minimum width of 0.4 mm, preferably a minimum of 0.5 mm.

10. Intervertebral disk prosthesis (1) as per claim 8 or 9 is characterised in that the gap has a maximum width of 1,0 mm, preferably a maximum of 0,8 mm.

11. Intervertebral disk prosthesis (1) as per one of the claims 1 to 10 is characterised in that the object (2) in a spiral-wound state – viewed at the spiral level – features an oval or kidney-shaped shape, preferably with a surface between 250 to 750 mm<sup>2</sup> measured at the spiral level.

12. Intervertebral disk prosthesis (1) as per one of the claims 1 to 11 is characterised in that object (2) contains a hydrogel and preferably consists completely of hydrogel.

13. Intervertebral disk prosthesis (1) as per one of the claims 1 to 9 is characterised in that object (2) is manufactured using an injection-molding process and its injection point (9) is positioned in the area of the second end (4).

14. Intervertebral disk prosthesis (1) as per claim 13 is characterised in that the injection point (9) is located in a recess vis-à-vis the upper spiral level (6).

15. Intervertebral disk prosthesis (1) as per one of the claims 1 to 14 is characterised in that the first end (3) is designed asymmetrically towards the interior of the spiral.

16. Intervertebral disk prosthesis (1) as per one of the claims 1 to 15 is characterised in that object (2) is X-ray-opaque, preferably achieved by using the additive barium sulfate.

17. Intervertebral disk prosthesis (1) as per one of the claims 1 to 16 is characterised in that object (2) contains X-ray-opaque components, preferably in the form of filaments, wires or tiny globes.

18. Intervertebral disk prosthesis (1) as per one of the claims 1 to 17 is characterised in that the last exterior spiral turn with a circumference of at least 360° of the spiral-wound object (2) features a thinner cross-section when compared with the remaining spiral turns.

19. Intervertebral disk prosthesis (1) as per one of the claims 1 to 18 is characterised in that the exterior end (3) of the object (2) is fitted with aids (11, 12, 13, 14), which are suited for gripping the intervertebral disk prosthesis (1) using an insertion instrument, preferably in the form of indentations or protrusions.